the insects if they are left undisturbed in their silken tunnels ; but, if these are broken by constant sweeping, and the caterpillars are left exposed, cold will certainly injure them. Moths and caterpillars placed in a glass bottle, and exposed to a temperature of five degrees above zero (Fah.), were all severely crippled, and did not recover. The above facts suggest the advisability of occasionally opening mills, which are supposed to be infested, so that the cold of winter may penetrate. If the moths are seen about in spring, fumigating with sulphur at short interval must be practised. Old sacks received from outside sources should be carefully examined, as these would probable be the most frequent means of carrying the pest from one mill to another. It is probable that this insect passes the winter in the caterpillar state, in which it is more or less active, according to the temperature.

SOME NEW COLORADO MOTHS.

BY G. H. FRENCH, CARBONDALE, ILL.

Cossus Brucei, nov. spec.

Expanse, male 2.50, female 3.00 inches.

Ground color, very pale gray, almost white, no dusky shading over the wing. Fore wings crossed by a great number of fine black lines. In the male none of these form reticulations except a few along the basal half of the internal vein and near the outer margin. The female has a few more of the reticulations in the outer third of the wing. On the male one line more prominent than the rest crosses the wing through the middle from the costa to the posterior margin at the origin of the fourth median vein, forming a straight line. On the female this line follows the fourth median vein about a tenth of an inch, and then goes in a straight line obliquely to the margin, and is not so heavy as in the male. Both sexes have a sub-terminal line not quite so prominent as the median, from near the apex to the posterior angle, bifid on costa, nearly straight in the male, slightly curved outwardly in the female, reaching the angle in a fine line. Veins dark only as denuded. Hind wings, with a space at the base and along

the inner margin, covered with long hairs as usual, the rest reticulated ; of the same color as the fore wings.

Head gray, darker in the male ; collar slightly more buff tinted than the ground color of the wings, making a light drab, without marks ; thorax gray, a mixture of the ground color of the wings and black, a black line round the posterior margin preceded by a space devoid of black ; abdomen of a lighter gray than the thorax. Beneath the thorax and abdomen concolorous with the same parts above, the legs ringed with light.

This species is nearest to *Cossus Angrezi* Bailey, but differs from that in several particulars. It lacks the dark shading on the fore wings, in the shape and distinctness of the transverse median line on fore wings, and in the shape and position of the subterminal line. The fore wings are a little less rounded at the apices, otherwise they are shaped alike. The hind wings in this species are reticulated over the terminal two-thirds, while in *Angrezi* the reticulations do not cover quite half. In *Angrezi* the thorax is black, with the edge of the tegulae shaded with yellowish gray ; in this the thorax and tegulae are both gray. The antennae are pectinated in both sexes, most heavily so in the male. The under side of the wings repeat the markings of the upper side, but a little blurred. The space between the two transverse lines is a little shaded with brownish. The female has the ovipositor exerted about .30 of an inch.

Described from two examples, one of each sex, taken by David Bruce, in Colorado, in 1887, and in the name dedicated to him.

Tolyte distincta, nov. spec.

Expanse, male 1.12½, the female 1.50 inches.

Male.—In color and markings between *Velleda* and *Laricis*, rather a dark leaden gray ; the fore wings crossed by two geminate lines and a subterminal line, similar to those of *Velleda*, but the subterminal line is also inclined to be geminate. These lines are lighter than the ground colour, but not white as in *Velleda*. The geminate lines bordered each side by a shade line that is slightly brownish ; fringes concolorous, a whitish gray line at the base. Hind wings nearly the color of fore wings, a pale shade through the middle and at the outer border ; fringe like that on fore wings.

Head and thorax gray, the front a little mixed with brown, the middle of thorax with the usual glossy brown scales in the form of a longitudinal crest; abdomen gray, brown tinted, the sides at the base white, beneath a little paler than above; antennæ strongly pectinate.

Female.—Color and markings as in the male, the bands and veins a little more decided in contrast of color with the wings. Thorax dark leaden gray, patagiae rather lighter gray than the wings; the entire absence of white anywhere.

This species is between *Velleda* and *Laricis* in size, as well as markings and colour. The antennæ are strongly pectinate, more so than *Laricis*, but not so much as *Velleda*. There is no decided white on either sex, except on the sides of the abdomen of the male, the cross bands and veins of the fore wings being whitish gray. The fringe of the fore wing show a tendency to be paler at the ends of the veins, but they are not pale externally, as are those of *Velleda*.

Captured by Mr. David Bruce, in Colorado, and described from two males in my cabinet, and one female in that of Mr. Bruce.

Halisidota occidentalis, nov. spec.

Expanse, 1.30 inches.

Fore wings hyaline, except the anterior part to subcostal vein, the base, and the posterior part along the submedian vein and a little above that at the base. The costal space alternately four patches of yellow, between a buff and a chrome yellow, and yellowish brown; the posterior margin alternately two spots each of the yellow and brown, the basal yellow and the terminal brown spots the longest. From the costal brown spots three irregular sub-hyaline brown bands extend across the wing, the two outer connecting with the two brown spots on the posterior margin, the third from the outer margin not reaching the margin but blended posteriorly with the second; the sub-basal brown spot on the costa is in line with a red-brown spot on the median vein at base; the subhyaline brown, is darker than that on the costa. The hyaline spaces left between these brown bands corresponds to the light bands in such species as *Agassizii*, etc. Veins brownish yellow, as also the extreme outer portion of the wing. Hind wings hyaline, immaculate; fringes of both wings pale.

Head pale yellowish brown, a yellow transverse stripe in front, antennæ

pectinate, pale yellow-brown. Thorax yellow buff; collar, a dorsal line and a line on outer edge of patagiae brown, the edge of collar next to head yellow; abdomen yellow; beneath pale yellow, with the front of anterior legs brownish.

Described from one male taken by Mr. Bruce, in Colorado.

Halisidota subalpina, nov. spec.

Expanse, 1.55 inches.

Fore wings yellow-buff, so sprinkled with brown scales as to appear quite brown, crossed by six rows of spots that are part yellow and part white, all except the costal surrounded by a brown annulus. The first row is of two spots, the first on costa and the second on median vein, all yellow; the second row is of three, the first large and at right angles to the other two very small white ones; the third row is of five spots, the costal yellow, the next three white, the second very small, the third and fourth equal, the fifth yellow and lacking the basal part of annulus; the fourth row is of five spots, the costal yellow, the second large and in the cell white, the third a brown spot, the other two small, white; the fifth row of six spots all white except the costal, the first and second only separated by the vein, the sixth very small; the sixth row is of nine spots, all white but the costal, the first, second and ninth very small, the seventh and eighth tending to fuse, the ninth removed inward out of line with the others. The last spot in four of these rows is below the submedian vein. Fringes brown, with buff at the ends of the veins. Hind wings pale buff, a pale stain spot at the end of cell and at the apex.

Head yellow in front, brown between the antennæ, antennæ pale yellow brown; collar buff, a central line and a spot each side brown; thorax buff, a brown line each side of the centre; centre of patagiae pale buff, with a brown line each side, the two uniting in front; abdomen buff. Beneath similar to the upper but paler, the abdomen with a central and lateral brownish stripe, the costa of hind wings with three brown stains.

Collected in Colorado by Mr. David Bruce. Described from one male. This species is near *H. Scapularis* Stretch, but differs in size, colour and markings. In *Scapularis* all the spots are white, and the ground color is brown, with the thorax brown instead of buff. These are a few of the differences between the two species.